

Teaching a Course in Flexible and Distance Learning with Virtual Schooling

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Abstract: Distance education provides the potential for fundamental changes in how we undertake teaching and learning (Davis, 2008; Harasim, 1990; Natriello, 2005). It is becoming prevalent for K-12 students, as well as in universities and it is time to prepare future teachers for this mode of schooling (Davis et al, forthcoming). To deliver a quality course online, teachers need effective interpersonal communication and facilitation skills in addition to subject-area expertise (Brennan, 2003, Lynch, 2002). This paper describes an undergraduate course in Flexible and Distance Learning taught at a Midwestern university as a blended course to combine the best elements of face-to-face instruction with the best aspects of distance education. Unusually the course aimed to prepare future K-12 teachers to experience four roles, namely learner, designer, teacher, and site facilitator for K-12 students. After describing the structure and organization of the course, important issues including the course design, pedagogy, and the challenges are discussed with plans for future development of an international community of practice to prepare future teachers for distance education in the 21st century.

Introduction

Distance education having flexible, distributed and interactive nature has created the potential for fundamental changes in how we undertake teaching and learning (Bower, 2001; Caplan, 2004; Harasim, 1990). Allen and Seaman (2006) found that for the fall of 2006, more than 3 million university students took at least one online course in higher education in the US representing 300% increase over numbers reported in 2002 and there was general agreement that this would continue to rise (Sloan-C, 2005-6 cited in USDOE, 2007). Distance education is also increasing in K-12 education. Watson and Ryan (2007) state that "As of September 2007, 42 states have significant supplemental online learning programs (in which students enrolled in physical schools take one or two courses online), or significant full-time programs, or both.

However, the rapid growth in the number of online classes poses some challenges for the teachers. For instance, in US, university instructors are generally expected to be able to prepare, present, and facilitate distance learning experience as well as monitor progress and evaluate performance (Moore, 2001). Therefore, to deliver a quality course online, today's instructor needs effective interpersonal communication and facilitation skills in addition to subject-area expertise (Brennan, 2003, Lynch, 2002). According to Loveland (2007), organization of the course materials, clarity of the instructor's writing, timeliness in providing feedback and interest in whether students learned had strong impacts on overall teaching effectiveness in online courses. Along with the instructor variables, the most important factor in determining student satisfaction and learning in online courses were indicated as the design of educationally-effective courses including student-faculty and student-student interactions (Bolliger & Martindale, 2004; Kearsley, 1995; Picciano, 2001; Sherry, 1996).

Graham, Cagiltay, Craner, Lim and Duffy (2000) evaluated four online courses based on the American Association of Higher Education's "Seven principles for good practice in undergraduate education" (Chickering & Gamson, 1987). The results indicated that although instructors were generally motivated to do an excellent job of teaching in an online environment, they were not always familiar with what strategies would be most successful in the online teaching environment. Additionally, instructors had expressed concerns that managing so much interaction online through the bulletin boards etc. was very time consuming and might cause burn-out.

Taking into account of all these factors regarding with the practices and research in distance education, it is critically important that, twenty-first century preservice teacher education cannot ignore this new mode of schooling – all teachers must be prepared (Davis and Niederhauser, 2007). Recognizing this need, a consortium of teachers education programs led by the Iowa State University requested and received federal funding to create a teacher education program to prepare effective Virtual Schooling (VS) teachers and to establish a nationwide community of practice on VS teacher preparation. The Teacher Education Goes into Virtual Schooling (TEGIVS, see <http://www.public.iastate.edu/~vschool>) project has developed and evaluated a range of strategies and resources to permit faculty to integrate this new mode of education alongside the traditional pedagogy in four diverse teacher education programs. These strategies include a lab introducing future teachers to virtual schooling in secondary and/or elementary contexts; a theme within a methods course; a pre-student teaching field experience; and a course on flexible and distance learning. In common with good practice all four teacher education programs introduce student teachers to information technology along with instructional design and challenge them to develop skills and knowledge for their future educational context.

This paper by the instructor and her teaching assistant describes and reflects on a three credit semester-long course on flexible and distance learning redesigned to incorporate virtual schooling in Iowa State University. After describing the structure and organization of the courses, some important issues including the course design, instructor variables, and the challenges were discussed.

Overview of the CI407/507-Flexible and Distance Learning Course

The course called Flexible and Distance Learning was offered in fall 2007 as a blended course to combine the face-to-face instruction with the experience of distance education. There were 13 students with different backgrounds enrolled for the course including 5 undergraduate students in CI407 and 8 graduate students in CI507, two of whom audited the class. All undergraduates were seniors who were in the technology minor of the teacher education program. The graduates included three working in distance education and one who aspired to. The class was met on campus for about half of the 15 week semester for two hours with the instructor and her assistant and met continuously online in a WebCT course (WebCT was the course management system adopted by this Midwestern University that is now owned by Blackboard). The content for the course was structured into a sequence of five units of instruction: (1) Introduction, (2) Survey of FDL, (3) Designing a Unit of FDL, (4) Teaching and Learning, and (5) Evaluation and Conclusion. Each unit included readings, discussion, assignments and additional resources. The graduate students had an additional unit of instruction with discussions and assignments to structure in writing and critiquing of a professional paper in this subject.

Before development to support K-12 flexible and distance learning, this course already had an unusual case-based project-based approach described in Davis & Nilakanta (2003). The course and its complement in the graduate degree program was redesigned to incorporate virtual schooling in four phases and accompanied by an assessed reflective journal: learning, designing, teaching, and evaluation. During the learning phase students' first assignment was to plan for online learning including scheduling their time and researching healthy use of computers. Readings and resources included Lynch (2004) and the TEGIVS (see <http://www.public.iastate.edu/~vschool>) project materials with their own choice of scenarios and case studies so that each could develop an understanding of virtual schooling in their various content and phases. Students were encouraged to reflect on and discuss the challenges they experienced as learners at the start of the course using tools of Blog and discussion in the university course management system (WebCT). The learning phase also included guest speakers and visits to distance learning facilities. During the second phase over one month groups of 2-5 students took on the role of designer to create an online module of instruction of their own choice in a second course management system (the open source software Moodle, see <http://www.moodle.org>). Then for three weeks the class only met online and the students taught their unit of instruction to their peers. The course ended with a brief period of evaluation of both the units of instruction and the instructor's course, which included one final on-campus session. Throughout the course students continued to reflect and discuss their experience and readings in WebCT, with the instructor prompting students to consider their experience and readings from the perspective of the current phase. Students were also encouraged to ask for clarification and further support, which was provided by the instructor and by peers.

Results

What went well?

Various beneficial and effective aspects of the course are drawn from on the authors' reflective observations as well as students' reflections. There was good access because of the archived course in WebCT, especially the reflective journal maintained by each student, plus students' units of instruction in Moodle.

Course structure

Students gave their opinions on the course structure. One student was content with having both graduate and undergraduate students in the course enabling him to work with students from so many backgrounds and see how FDL spans curriculums and content areas and he stated that the course was easy to navigate, was very well organized and provided a great deal of flexibility. Another student agreed:

"407/507 has been great from a learner's perspective because content and discussion is divided into units, which is how information is presented in face-to-face courses. In many other WebCT courses that I've taken I've found myself overwhelmed by content and often searching through discussion pages looking for threads that relate to the questions I have, or the topic I would like to comment on. To have a page that summarizes the upcoming topics, lists relevant references, readings, and assignments is invaluable in an LMS environment".

Additionally, two students indicated that they found the course textbooks (Lynch, 2002 and 2004) very helpful in terms of recognizing different types of FDL. Most of the students stressed the effectiveness of study plan assignment in organizing their schedule and reminding them of health and safety issues which they previously ignored.

Classroom community

The warming up activity required students to introduce themselves as if it were from their pet and respond to at least one message from another student was a great way to take students attention and considered to be the first step to build a learning community in this course. It had been adapted from a similar activity in the Virtual High School TM. One of the students mentioned that this class felt more like a community than other classes she had taken. Another student stated her views regarding with the class community as follows:

"One of the things that I have really enjoyed about this class is that there is a want for community. It starts with the instructor and flows down through both the graduate students and the undergraduates. What I find interesting is that even though we meet once a week the face to face meetings aren't where the community is building as much as through the discussion threads. Any other distance learning experience that I have had really lacked in the communication and interaction aspects. Even though this class is still less than a true classroom course, it is doing a really good job of getting the discussion going".

However, one student suggested that having every student's pictures on WebCT would be helpful to get to know each other and remember the names when they got to face-to-face class. In future when the course moves to Moodle, the students' pictures will be seen in many places in the online course.

Visits and guest speakers

The class visit to the ISU Engineering Distance Education helped students gain real experience on how one distance education organization works and guest speakers provided them with first hand experiences related to distance learning thus helped them concretize how technology is used in real life situations. Another student stated her views as follows:

"I also enjoyed our guest speakers, who all had excellent experiences to share with us. Talking and listening to some real people with strong ties to online learning helped me further develop my own feelings about it".

One of the students provided his views about participating in an Iowa Communications Network (ICN) video conference session with a distance educator in a rural Iowa high school as follows:

"[the Iowa Learning Online Coach] shared her experienced being an aide to distance learning. She also answered questions about how well the program worked as well as some other details about the program (cost, effectiveness, popularity, pros, cons, future progress, etc.). It was a great real life experience, to converse with somebody who's actually involved in implementing FDL instead of just reading about it in a book".

Reflective journals

Journals where students reflect their own experiences were beneficial both for the students to track the change of their views and knowledge regarding with distance learning. One student mentioned that it was helpful not to have to write one journal entry per week, but to have the flexibility to have a certain amount of entries by the end of the semester (averaging one per week). One student explained her journaling experience as follows:

"I know most people see journaling as tedious work and I would strongly agree. But I think for the amount of information that I have learned in this course it has been very helpful for me to look back and "connect the dots". It has been easier for me to grasp the ideas if I can go back and look at what I have already learned and how they relate".

The instructor also used the journals to learn a great deal about the progress of students and she often used this knowledge to accommodate the course to the different needs of individual student. This has been a successful strategy for a number of years.

Moodle project

All the students actively participated in a group that designed a unit of instruction in Moodle and each of them became student for one or two of these units. Therefore, they all got feedback from their peers, gained some experience about how their unit might be used in a real life situation and the dynamics of teaching a distance learning course. This was an invaluable asset for all the prospective teachers in K12 and higher education. One of the students stated her views as follows:

"It was also interesting to be in both the roles of student and teacher in this course. I enjoyed being in the comfortable position of "student" for the first portion of class, and I also came to enjoy the more challenging position of "teacher" later on".

She also suggested that Moodle project should remain a key component of this course, because it brought a lot of topics together and it could be helpful for both undergraduate and graduate students. Another student mentioned the value of getting feedback from his peers and explained his ideas as follows:

"The amount of positive and critical feedback was, in my opinion, terrific. It was basically ongoing advice on how to make our moodle page better, and that's seriously what this is about, making a functioning site that could be literally be put into practice by teachers. I believe this wouldn't have been possible had it not been for the suggestions and support we received. So yes, there was plenty to improve on our project, and now we have. I really feel that this project and this group atmosphere have made this class a complete success for me and my future".

The students' units of instruction were often outstanding examples of collaborative instructional design, particularly when groups included a graduate employed in some form of flexible and distance learning. For example, one group assisted a member of staff in ISU extension to significantly improve the design of one unit so that it increased its quality and essentially changed her course from a cyber tutorial to an interactive asynchronous course. The group also contributed added content on the important topic of Internet safety for young people in that course for volunteer leaders of youth.

Over 90% of higher education institutions are engaged in distance education, so this approach is transferable to most teacher preparation programs. The added benefit is that higher education instructors and their support staff become more aware of the needs of their learners, including those who take university courses while still at high school.

Course instructor

The instructor was very well organized, provided timely and constructive feedback to the students and encouraged those to be more active in order to get the most benefit from the course. One of the students stated her views about the course instructor as follows:

"I am being to think upon the instructor's role. As an instructor of a principles and practices of FDL Dr D. has a huge responsibility to create a meaningful course and also to model for student's good practice. I am amazed at how much time she is taking to check in with us. She's answered questions, redirected discussion threads, prodded students to take part in conversations, and even graded assignments given to her yesterday! Since I've been around a University community for a long time, I know she has lots of other commitments and pressures. I don't know if I would be that patient with students".

Two students mentioned that since the instructor gave them feedback right away through e-mail or even on the course website, they could continue getting the rest of their work done.

TEGIVS lab tools

Three students gave feedback regarding with the TEGIVS tools and they all found the tools engaging, well-designed and described them as a great model for creating an online training system. One of the students mentioned her views as follows:

"One of my first ah, ha moments in the class was reviewing the TEGIVS Project Laboratories for Secondary students. I think this was the first real interactive, educationally sound lesson I had experienced online that had direct translation for me in my work. The simulations were well done. Insight was also gained by reviewing the three aspects of virtual schooling: technology, distant collaboration, and local practice".

She further indicated that they included scenarios to the Moodle project which was a direct result of experiencing the TEGIVS tools. Another student more commented on the interface of the tools. He stated his views as follows:

"I was impressed with the both the physical and instructional design of both TEGVIS sites. It's a major benefit that the courses are "free-standing", meaning that they do not require a learning management system for students to access them. Additionally the progression of the page layout was very intuitive, each section was short and to the point, learners would not be overwhelmed by content".

Then, one student mentioned that she found the TEGIVS links providing examples of using Virtual Schooling in elementary education very helpful and especially enjoyed exploring the iEARN website.

What were the challenges?

Some of the challenges occurred during the process were related to course structure, Moodle project, technical difficulties and classroom community.

Course structure

Although some of the students felt comfortable with seeing each unit one by one, one student concerned about the lack of all units up on the site from the beginning of the course. She stated her frustration as follows:

"I like to work ahead when I know I will be gone and it was hard to do in this class. At the beginning I would complete the readings for one unit and couldn't start the next one for two weeks until it was up. This was disconcerting as it put me at a disadvantage, I didn't have the background yet to really start a paper and that was the only thing I could have worked on".

Two students indicated that they sometimes found the assignments confusing and unclear so that they needed some further guidance before doing the online activities. Additionally, one student stated her discomfort when she felt that she was forced to discuss with the guest speakers and suggested that a debriefing might have helped with the feelings of awkwardness. Furthermore, one of the students found some of the guest lectures unrelated to her area of interest.

Moodle project

While most of the students found the Moodle project as the best part of the course, they explained some of the challenges occurred during the process. One student complained that the Moodle tutorial presented in the class was fast, and difficult to follow. In future an additional text will be added, which provides both pedagogical support and Moodle skills.

In addition, two students indicated that the projects would be more productive, if they were given a longer period of time with more people involved. One student concerned about her lack of engagement in the Moodle sites, both as a student and as an instructor due to the fact that she did not receive any notifications thus tended to forget to check the Moodle sites. Greater understanding of Moodle's tools would have avoided this. Finally, only one of the four groups mentioned that they had problems such as scheduling confusion and miscommunication caused them delay in their Moodle project. At the same time it should be noted that this is an authentic experience and similar delays are experienced in the field of distance education.

Technical difficulties

The technical difficulties students faced were mainly about some of the confusions they felt before getting used to the WebCT environment. One of the students stated her complains about WebCT environment as follows:

"At times I find Web-CT to be disorienting, although I am becoming more familiar with it each time I log on. I keep forgetting where to look for the Reflections/Blog page and I still don't get how to thread a discussion correctly. I feel I accidentally found the assignment to add to the Health and Safety discussion and I am not sure if others are responding and if they are where they are responding. I keep looking around for stuff, but haven't found what I think I need to be finding. I am not sure why I can't print off some of the class readings. I feel I am going to mess-up so I hesitate to add to discussions".

Similarly, two students explained that they felt lost in WebCT environment, could not find the information they were looking for but then figured out by the help of their classmates. Then, two students stated that collaborating from a distance was frustrating because of the technical difficulties such as slow Internet connection and inefficient chat tool in WebCT. However, the student reflections showed that almost all of the students felt themselves more comfortable and competent in using different technologies including WebCT at the end of the semester and the experience of designing their own units of instruction in Moodle helped them understand the challenges for an instructor creating a design in which all students feel at home.

Classroom community

Discussions facilitated the communication and interaction among the students as well as between the students and instructor thus enabled building a classroom community. However, one student mentioned that online discussion did not work well because everyone left it to the last moment which then resulted in a bunch of individual reactions to the reading rather than a dialogue. Another student stated that since she was a very shy person, the discussion boards weren't really a strong point for her and she tended to just reading the discussion topics instead of actively participating in. The term for this is "lurking" and it is a common issues in online discussions but not in on site discussions. This student in common with many lurkers found the discussions helpful, despite her apparent lack of contribution:

"When I watched what they were discussing on WebCT I was able to draw from the conversations and get an idea of how everyone else was getting the conversations. Although my participation may have been low on the discussion boards I think they helped me out a great deal".

Furthermore, one graduate student reflected that she did not have much interaction with the instructors in the course because she did not feel comfortable asking questions or when she tried to have a conversation it did not seem to be meaningful for her at that time. She had started the course two weeks late, with permission, and was working in distance education. She did work well with her team and also produced an excellent paper that will inform her dissertation, so once again these feelings of discomfort did not disrupt learning and may be expected as part of the experience of flexible and distance learning. Indeed, it was the instructor's goal that student would experience such feelings and take them into account themselves when they became instructors.

Were future teacher better prepared?

As described earlier this course was part of the innovative TEGIVS project to put K-12 distance education within our preservice program. As part of that project's evaluation has been developing an instrument to assess competence as a Virtual Schooling Site Facilitator (Charania & Davis, 2008). Table 1 presents the results of the Wilcoxon Signed Ranks non parametric test for two related samples.

Table 1: Wilcoxon Signed Ranks Test Comparison of Pre- and Posttest Scores (N=12, no control group)

Items	Pre-Post Differences				
	Mean	SD		Z	Sig. (2-tailed)
		Pre	Post		
1. How important it is for all teachers to learn about VS access, teaching, technologies, benefits, issues, assessments, costs, and career impact?	-0.42	0.492	0.52	-2.236 ^a	.025*
2. How important is it that TE programs prepare teachers in VS?	0.000	0.515	0.515	.000 ^b	1.000
3. How aware are you of VS access, teaching, technologies, benefits, issues, assessments, costs, and career impact?	-1.42	0.793	0.522	-2.859 ^a	.004*
4. How likely would you be to teach in VS?	-0.08	0.701	0.835	.000 ^b	1.000
5. How competent are you to facilitate VS students?	-1.34	1.379	0.515	-2.401 ^a	.016*
6. How competent are you to teach VS students?	-1.66	1.497	0.389	-2.558 ^a	.011*
7. How competent are you to develop VS courses?	-1.41	1.564	0.492	-2.549 ^a	.011*

a. Based on negative ranks.

b. The sum of negative ranks equals the sum of positive ranks.

* p=.05

The results showed that compared to pretest ratings, the participants gave significantly higher ratings to the importance of learning issues related to VS and their awareness for learning environment in VS at the posttest. The ratings for competence for facilitating VS students, teaching and designing VS school courses were also significantly higher at the posttest.

Teaching Assistant

The main contributions to this course by the first author as teaching assistant were to help the instructor create the course in WebCT, create a WebCT quiz to learn what students brought to the course, and present a lecture about the systems view of FDL. It was a valuable experience very different from previous experience as a teaching assistant in Turkiye. The experience and constructive feedback from the instructor and students is likely to support growth as a future faculty. For instance, the lecture which covered the systems view of FDL was found too complex for both graduate and undergraduate students; a common experience for new teachers. Additionally, the teaching assistant was not proactive in the course community and in facilitating the discussions, except for some feedback to their one or two projects and this was because of the lack of experience in facilitation. Previous responsibilities as a teaching assistant consisted of providing worksheets on computer where the lecture material was extensively reviewed, preparing assignments, guiding students in educational software development process and evaluating the projects at the end of the semester. More encouragement from the instructor for the teaching assistant to engage proactively could have avoided this. However, it is important to know that this is a learning process which has provided an invaluable learning experience to have a successful academic career.

Ways forward

The virtual schooling movement that support an exponential increase in the number of K-12 students involved in flexible and distance learning is likely to continue its growth and it is encouraging for preservice teacher educators to know that many virtual schools, including Iowa Learning Online, Florida Virtual School and VHS, also recognize the ongoing need for professional development and have become keen to support preservice teacher preparation. Some are actively seeking to recruit and mentor new teachers, including those newly qualified teachers who have exemplary twenty-first century skills (Davis & Rose, 2007; USDOE, 2007). This paper has described a course that we found to be successful in laying a foundation for teachers who wish to lead with technology in all phases of education. We do not suggest that they are ready to start their own class, because they will need further professional development and induction into the profession. However we were pleasantly surprised at their level of engagement and the successful products from this course. It created a synergy between instructional designers in higher education and the preparation of future teachers.

Our course design including pedagogy with authentic experience of flexible and distance learning are transferable to other undergraduate and graduate programs. This was an objective of the TEGIVS project, which is creating a national and international community of practice among teacher educators (Davis et al, forthcoming). At the SITE 2008 conference in Las Vegas our workshop and symposium will support expansion of early community that has already spread beyond the four partner programs of the project. Our paper in the society's online journal also aims to archive the materials that we have created and used in this course as well as other parts of our teacher education programs. In addition, the materials are created under a Creative Commons license that encourages adaptation to new context. Like this course they are also disseminated with encouragement for further development and sharing among teacher education programs worldwide. We look forward to hearing about those developments and encourage readers to give us feedback.

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